

REMARKS

Claims 1, 2, 8-12 and 18-20 are pending in this application. By this Amendment, claims 5-7 and 15-17 are canceled without prejudice to or disclaimer of the subject matter contained therein, and claims 1 and 11 are amended. Claim 1 is amended to incorporate features from claims 5-7 and 11 is amended to incorporate features from claims 15-17. No new matter is added by any of these amendments.

Entry of the amendments is proper under 37 C.F.R. §1.116 since the amendments: (a) place the application in condition for allowance for the reasons discussed herein; (b) do not raise any new issue requiring further search and/or consideration since the amendments amplify issues previously discussed throughout prosecution; (c) do not present any additional claims without canceling a corresponding number of finally rejected claims; and (d) place the application in better form for appeal, should an appeal be necessary. The amendments are necessary and were not earlier presented because they are made in response to arguments raised in the final rejection. Entry of the amendments is thus respectfully requested.

The Office Action rejects claims 1, 2 and 5-20 under 35 U.S.C. §103(a) over U.S. Patent 5,863,105 to Sano in view of U.S. Patent 5,636,909 to Hirao et al. (Hirao). The rejection is rendered moot with respect to claims 5-7 and 15-17 and is respectfully traversed with respect to the remaining claims.

Sano and Hirao do not teach or suggest a brake system for a vehicle comprising a brake apparatus that applies braking force to each wheel of the vehicle; and a controller that controls the braking force applied to the wheel by controlling the brake apparatus so that an actual slip rate of the wheel matches a target slip rate, wherein the controller is adapted to: during a specific brake control mode in which the target slip rate is set so as to prevent the actual slip rate of the wheel from exceeding a reference value and therefore avoid locking the wheel, make a first correction to the target slip rate set in the brake control mode such that the

actual yaw rate of the vehicle matches a target yaw rate; and ensure through an adjustment of the target slip rate, a provision of a greater longitudinal force on the wheel than that obtained with the target slip rate determined or would have been determined by the first correction if a reduction in braking force of the vehicle is expected, wherein the controller is further adapted to bring about the adjustment of the target slip rate by increasing the target slip rate determined by the first correction or by prohibiting the first correction, and the controller is configured to expect the reduction in the braking force when at least one of the vehicle is running on a poor surface road, or when road surfaces that contact the right wheel and the left wheel of the vehicle have friction coefficients that are different from each other, or when there is an abnormality in the brake apparatus for any one of the wheels, as recited in claim 1.

Nor do Sano and Hirao teach or suggest a method of controlling a brake apparatus for applying braking force to wheels of a vehicle, the method comprising controlling the braking force applied from the brake apparatus to each wheel when an actual slip rate of the wheel has exceeded a reference value so that the actual slip rate matches an target slip rate and the wheel is thereby prevented from being locked; making a first correction to the target slip rate so that an actual yaw rate of the vehicle matches a target yaw rate; and ensuring through an adjustment of the target slip rate, a provision of a greater longitudinal force on the wheel than obtained with the target slip rate determined or would have been determined by the first correction if a reduction in braking force of the vehicle is expected, wherein the adjustment of the target slip rate is brought about by increasing the target slip rate determined by the first correction or by prohibiting the first correction, and the reduction in the braking force of the vehicle is expected when at least one of the vehicle is running on a poor surface road, when road surfaces that contact a right wheel and a left wheel of the vehicle have friction coefficients that are different from each other, or when there is an abnormality in the brake apparatus for any one of the wheels, as recited in claim 11.

Applicants' invention of claim 1 is directed to a brake system that during a specific brake control mode prevents the wheel from being locked and allows the steering operation during braking. During the specific brake control mode a target slip rate is set so as to prevent the actual slip rate of the wheel from exceeding a reference value and thereby avoid locking the wheel. A first correction to the target slip rate set in the brake control mode is made such that an actual yaw rate of the vehicle matches a target yaw rate and by adjusting the target slip rate, provision of a greater longitudinal force on the wheel than obtained with the target slip rate determined or would have been determined by the first correction if a reduction in braking force of the vehicle is expected, wherein the controller is adapted to bring about the adjustment of the target slip rate by increasing the target slip rate determined by the first correction or by prohibiting the first correction and the controller further is configured to expect the reduction in the braking force when at least one of the vehicle is running on a poor surface road, when road surfaces that contact the right wheel and the left wheel of the vehicle have friction coefficients that are different from each other, or when there is an abnormality in the brake apparatus for any one of the wheels. Claim 11 is directed to such a method.

Neither Sano nor Hirao, or their combination, suggests such a system. Sano describes a method for correcting a target slip ratio of a target wheel based upon a required yaw moment of the vehicle where an antiskid braking system should be activated. However, Sano teaches correcting the target slip ratio of the wheel before the braking force of the wheel is to be controlled (col. 2, lines 45-48). That is, Sano, acquires a correction amount for the target slip ratio of a target wheel to be controlled based upon the required yaw moment of the vehicle in a situation where an antiskid braking system should be activated (Abstract). Applicants' invention, on the other hand, is directed to the adjustment of the target slip rate brought about by increasing the target slip rate determined by the first correction or by prohibiting the first correction if a reduction in braking force of the vehicle is expected and

then provides at least three conditions when such would be expected by the controller. Thus Sano is dealing with before braking is even applied whereas Applicants' invention deals with braking and a reduction thereof that is expected.

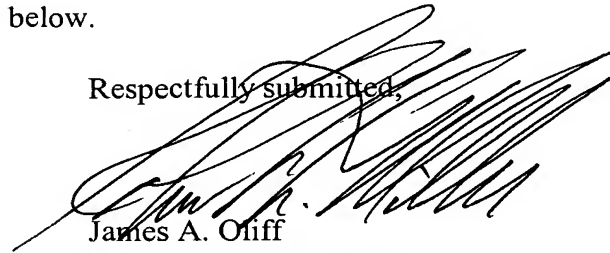
Hirao deals with a traction control system for a vehicle during a turn. It says nothing about application of the brake control system although it does note that the control of the steering can be done by either or both of engine control and brake control. However, adding such teaching to Sano still does not suggest Applicants' claimed invention as there is no teaching in Hirao of ensuring through an adjustment of the slip rate a provision of a greater longitudinal force on the wheel when obtained with the target slip rate determined or would have been determined by the first correction if a reduction in braking force of the vehicle is expected and the reduction in the braking force of the vehicle is expected when at least one of the vehicle is running on a poor surface road, road surfaces that contact a right wheel and a left wheel of the vehicle friction coefficients that are different from each other and, there is an abnormality in the brake apparatus for any one of the wheels.

For at least these reasons, Applicants respectfully assert that the independent claims are now patentable over the applied references. The dependent claims are likewise patentable over the applied references for at least the reasons discussed, as well as for the additional features they recite. Consequently, all the claims are in condition for allowance. Thus, Applicants respectfully request that the rejection under 35 U.S.C. §103 be withdrawn.

In view of the foregoing amendments and remarks, Applicants respectfully submit that this application is in condition for allowance. Favorable reconsideration and prompt allowance of claims 1, 2, 8-12 and 18-20 are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,



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Attachment:
Petition for Extension of Time

Date: December 8, 2005

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